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**OFFICIAL****To: U.S. Patent and Trademark Office****Facsimile: 703 872-9306****From: Gregory P. Einhorn, Esq.****Date: June 11, 2004**

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**Comments: Attached is a signed copy of the declaration forwarded unsigned on May 19, 2004, responsive to the non-final office action of December 19, 2004.**

Attorney Docket: 56446-2000320  
Group Art Unit: 1652  
Examiner: Delia M. Ramirez, Ph.D.  
Serial No.: 09/886,400  
Filing Date: June 20, 2001  
Inventor(s): Dennis MURPHY et al.  
Title: ALPHA GALACTOSIDASES AND METHODS FOR MAKING AND USING THEM (amended)

**Papers attached:**

1. Declaration Under 37 C.F.R. Section 1.132 (signed) (3 pages)

sd-203302

Attorney's Docket No.: 564-20003.20/-004005/D1120-4

## IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

OFFICIAL

Applicant : Murphy, et al.  
Serial No. : 09/886,400  
Filed : June 20, 2001  
Title : ALPHA GALACTOSIDASES AND METHODS FOR MAKING AND USING THEM (AMENDED)

Art Unit : 1652  
Examiner : Delia M. Ramirez, Ph.D.

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

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DECLARATION UNDER 37 C.F.R. § 1.132

Sir:

1. I, Jay Short, am a co-inventor with Dennis Murphy, John Reid and Eric J. Mathur, on the above-identified patent application.
2. I am an expert in the field of molecular biology and enzyme development and was an expert at the time of the invention. I am presently employed as CEO and as a research scientist at Diversa Corporation, San Diego, CA, assignee of the above-referenced patent application. My resume as documentation of my credentials as an expert in the field of molecular biology and enzyme development was submitted in an earlier response dated September 25, 2003.
3. I declare that the state of the art at the time of the invention and the level of skill of the person of ordinary skill in the art, e.g., screening enzymes, and nucleic acids encoding enzymes, for alpha galactosidase activity, was very high. It would not have required any knowledge or guidance as to which are the specific structural elements, e.g., amino acid residues, that correlate with alpha galactosidase activity to create variants of the exemplary

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May 19, 2004

Date of Deposit

Signature

Jeanne Amour

Typed or Printed Name of Person Signing Certificate

sd-200175

Applicant : Murphy, et al.  
Serial No. : 09/886,400  
Filed : June 20, 2001  
Page : 2 of 3

Attorney's Docket No.: 56446-20003.20/-004005/  
D1120-4

nucleic acid and test them for the expression of polypeptides having alpha galactosidase activity. It would not have required any knowledge or guidance as to which are the specific structural elements, e.g., amino acid residues, that correlate with alpha galactosidase activity to create variants or fragments of the exemplary polypeptides and test them for the expression of polypeptides or peptides having alpha galactosidase activity.

4. I declare that it was not necessary for the skilled artisan to understand which specific regions of alpha galactosidase sequence or structure needed to be modified without affecting function or activity to routinely generate the genus of alpha galactosidases of this invention. Methods for sequence modifications were sufficiently comprehensive, routine and predictable at the time of the invention to predictably generate alpha galactosidase-encoding sequences or protein sequences without need of knowing which specific regions of alpha galactosidase sequence or structure affected alpha galactosidase function or activity. Methods known at the time of the invention for modifying nucleic acid or protein sequences in combination with high through-put enzyme activity screening known at the time of the invention, made methods that require previous knowledge of protein structure, including secondary or tertiary structure, active site sequences, and the like obsolete and unnecessary. Using methods known in the art at the time of the invention it would not have been necessary to understand which specific regions of alpha galactosidase structure needed to be modified to generate a genus of nucleic acids or polypeptides for practicing the invention without undue experimentation. Using methods known in the art at the time of the invention it would not have been necessary to understand what may be critical structural features or elements of an alpha galactosidase to generate the genus of polypeptides of the invention without undue experimentation.

Applicant : Murphy, et al.  
Serial No. : 09/886,400  
Filed : June 20, 2001  
Page : 3 of 3

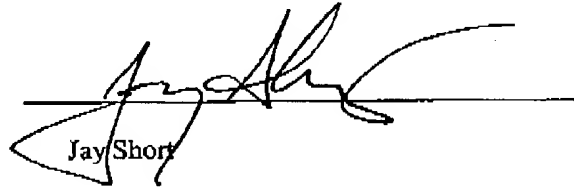
Attorney's Docket No.: 56446-20003.20/-004005/  
D1120-4

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Respectfully submitted

Date: \_\_\_\_\_

5/20/04

  
Jay Short